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Notice of Allowability

Application No.

10/535,435

Applicant(s)

BASSIRI ET AL.

Examiner

Andrew Wendell

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/14/2007.
2. ☒ The allowed claim(s) is/are 1,4,5,8,10,11 and 19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Allowable Subject Matter

1. The following is an examiner's statement of reasons for allowance: The prior art of record, Masuda et al. (US Pat Appl# 2004/0203911) teaches a primary repeater 430 (Fig. 4) operable to receive cell system downlink RF signals and transmit primary repeater uplink RF signals to the cell phone system 440 and 130 (Fig. 4); at least one auxiliary repeater 410 (Fig. 4) arranged within the enclosed environment 100 (Fig. 4); at least one gateway antenna 431 (Fig. 4 and Section 0060), coupled to the primary repeater, arranged at an entrance point of the enclosed environment so as to radiate primary repeater downlink RF signals 450 (Fig. 4) into the enclosed environment and receive auxiliary repeater uplink RF signals 451 (Fig. 4) from the auxiliary repeater 410 (Fig. 4), a donor antenna 111 (Fig. 4) coupled to the auxiliary repeater 410 (Fig. 4), the donor antenna and auxiliary repeater being operable to receive primary repeater downlink RF signals 450 (Fig. 4) from the primary repeater 430 (Fig. 4) and radiate auxiliary repeater uplink RF signals 451 (Fig. 4) to the primary repeater 430 (Fig. 4); and a server antenna 312 (Fig. 4) coupled to the auxiliary repeater 410 (Fig. 4), the server antenna and auxiliary repeater being operable to receive cell phone uplink RF signals from the cell phone 120 (Fig. 4) within the enclosed environment and radiate auxiliary repeater downlink RF signals to the cell phone 120 (Fig. 4, Sections 0056-0057 and 0060); a first interface 430 (Fig. 4) that is coupled to a control station for converting downlink control data 450 (Fig. 4) into corresponding downlink control RF signals and for converting uplink signaling RF signals (to 440, Fig. 4) into corresponding uplink

signaling data; a first combiner/decombiner that is coupled to the first interface for combining the downlink RF signals 450 (Fig. 4) with the downlink control RF signals for transmission by the gateway antenna 431 (Fig. 4), and for separating uplink RF signals from the uplink signaling RF signals (to 440, Fig. 4) received by the gateway antenna 431 (Fig. 4); a second interface 410 (Fig. 4) that is coupled to a signaling and driving system for converting the downlink control RF signals 460 (Fig. 4) into driver signals and for converting signaling signals into the uplink signaling RF signals 451 (Fig. 4); and a second combiner/decombiner that is coupled to the second interface 410 (Fig. 4) for combining the uplink RF signals 451 (Fig. 4) with the uplink signaling RF signals for transmission by the donor antenna 111 (Fig. 4) of the auxiliary repeater 410 (Fig. 4), and for separating the downlink RF signals 460 (Fig. 4) from the downlink control RF signals received by the donor antenna 111 (Fig. 4) of the auxiliary repeater 410 (Fig. 4); wherein the auxiliary repeater 410 (Fig. 4) and primary downlink RF signals 460 (Fig. 4) convey information in the cell phone system downlink signal to the cell phone 120 (Fig. 4) and the auxiliary repeater 410 (Fig. 4) and primary repeater 430 (Fig. 4) uplink RF signals 451 (Fig. 4) convey information in the cell phone uplink signal to the cell phone system 440 and 130 (Fig. 4), to maintain communications between the cell phone 120 (Fig. 4) and the cell phone system 440 and 130 (Fig. 4, "Thus, communication can be made possible even if the train runs in circumstances where radio waves from the normal base station 130 cannot be reach," Section 0060); wherein the auxiliary repeater 410 (Fig. 4) is mounted on a mobile conveyance movable in the enclosed environment 100 (Fig. 4) with the donor antenna 111 (Fig. 4) located outside the mobile conveyance

and the server antenna 312 (Fig. 4) located inside the mobile conveyance. Masuda et al. fails to teach a lift shaft and car, a driver system, and a first and second combiner/decombiner.

Moriya et al. (US Pat# 6,108,535) teaches wherein the enclosed environment is in a lift shaft 37 (Fig. 11), the mobile conveyance is a lift car 34 (Fig. 11) and the gateway antenna 7A (Fig. 11) is arranged at a ceiling of the lift shaft.

Masuda and Moriya fail to teach a driver system and a first and second combiner/decombiner.

Bolch et al. (US Pat# 6,364,066) teaches driver signals (Col. 3 lines 39-62).

Masuda, Bolch, and Moriya fail to teach a first and second combiner/decombiner.

Cook et al. (US Pat# 6,032,020) teaches a first combiner/decombiner that is coupled to the first interface for combining the downlink RF signals with the downlink RF signals for transmission by the gateway antenna, and for separating uplink RF signals from the uplink signaling RF signals received by the gateway antenna (Fig. 2); conversely, a second combiner/decombiner that is coupled to the second interface for combining the uplink RF signals with the uplink signaling RF signals for transmission by the donor antenna of the auxiliary repeater, and for separating the downlink RF signals from the downlink control RF signals received by the donor antenna of the auxiliary repeater (Fig. 2).

The prior art of record fails to teach a wireless communication system providing improved communications between a cell phone in an enclosed environment that is at least substantially shielded from RF signals, and a cell phone system located outside

of the enclosed environment, the wireless communication system comprising a primary repeater operable to receive cell system downlink RF signals and transmit primary repeater uplink RF signals to the cell phone system; at least one auxiliary repeater arranged within the enclosed environment; at least one gateway antenna, coupled to the primary repeater, arranged at an entrance point of the enclosed environment so as to radiate primary repeater downlink RF signals into the enclosed environment and receive auxiliary repeater uplink RF signals from the auxiliary repeater, a donor antenna coupled to the auxiliary repeater, the donor antenna and auxiliary repeater being operable to receive primary repeater downlink RF signals from the primary repeater and radiate auxiliary repeater uplink RF signals to the primary repeater; and a server antenna coupled to the auxiliary repeater, the server antenna and auxiliary repeater being operable to receive cell phone uplink RF signals from the cell phone within the enclosed environment and radiate auxiliary repeater downlink RF signals to the cell phone; a first interface that is coupled to a control station for converting downlink control data into corresponding downlink control RF signals and for converting uplink signaling RF signals into corresponding uplink signaling data; a first combiner/decombiner that is coupled to the first interface for combining the downlink RF signals with the downlink control RF signals for transmission by the gateway antenna, and for separating uplink RF signals from the uplink signaling RF signals received by the gateway antenna; a second interface that is coupled to a signaling and driving system for converting the downlink control RF signals 460 into driver signals and for converting signaling signals into the uplink signaling RF signals; and a second

combiner/decombiner that is coupled to the second interface and driving system for combining the uplink RF signals with the uplink signaling RF signals for transmission by the donor antenna of the auxiliary repeater, and for separating the downlink RF signals from the downlink control RF signals received by the donor antenna of the auxiliary repeater; wherein the auxiliary repeater and primary downlink RF signals convey information in the cell phone system downlink signal to the cell phone and the auxiliary repeater and primary repeater uplink RF signals convey information in the cell phone uplink signal to the cell phone system, to maintain communications between the cell phone and the cell phone system; wherein the auxiliary repeater is mounted on a mobile conveyance movable in the enclosed environment with the donor antenna located outside the mobile conveyance and the server antenna located inside the mobile conveyance and wherein the enclosed environment is a lift shaft, the mobile conveyance is a lift car and the gateway antenna is arranged at a ceiling of the lift shaft.

Even though Masuda, Moriya, Bolch, and Cook teach the claimed limitations, the examiner believes that it would not have been obvious to one of ordinary of skill in the art nor have no motivation to combine these references together.

Further, applicant's remarks filed on 11/14/2007 further state reasons for allowance.

The prior art of record fails to teach the claim subject matter as claimed and substantially connected in claims 1, 4-5, 8, 10-11, and 19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yokoi discloses a cordless telephone system for moving conveyances. Judd discloses repeaters for wireless communication systems. Reudink discloses an indoor distributed microcell. Takai discloses an adaptive antenna transmission apparatus, and base station apparatus using the same. Chuberre discloses a radio communication terminal broadcasting ET reception. Yonezawa discloses a repeater for radio communication system. Harada discloses underground information communication system and related manhole cover. Motoyama discloses an elevator system with wireless elevator control transmit/receive unit. Kallander discloses a radio coverage in closed environments.

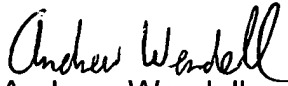
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Wendell whose telephone number is 571-272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Andrew Wendell
Examiner
Art Unit 2618

1/11/2008


NAY MAUNG
SUPERVISORY PATENT EXAMINER